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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MEW, KEVIN D	
ART UNIT	**PAPER NUMBER**
2664	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H:17

Office Action Summary	Application No.	Applicant(s)	
	09/599,000	DAVIS, ARLIN R.	
	Examiner	Art Unit	
	Kevin Mew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Final Action

Response to Amendment

1. Applicant's arguments/remarks filed on 9/10/2004 regarding claims 1-33 have been considered and are currently pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claim 1-20, 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Data and Computer Communications, Fifth Edition, William Stallings, 1997, in view of Ikeda (US Patent 6,711,167).

Regarding claims 1, 6, 10-11, 16-20, 27, Stallings discloses an apparatus at an ATM host (**local host**) comprising a LAN emulation module (**an emulation driver**, see 490, Figure 14.14) coupled to AAL5 (**channel adapter** comprising AAL5, ATM, and Physical Layer, see 490, Figure 14.14). While the LAN emulation module converts MAC frames (**legacy physical address**, see 490, lines 3-8) to ATM cells, AAL5 segments MAC frames (**local physical address**, see 490, lines 3-8) into a plurality of ATM cells (**a virtual interface**) wherein each ATM cell contains virtual channel identifiers (**channel adapter mapping local physical address of the remote node,** ATM-to-LAN converter**, to a VI channel**, see on 490, Figure 14.14). In addition, Stallings discloses AAL5 (**channel adapter**) is coupled to some memory

buffers so as to allocate memory to each ATM cell. Stallings further discloses the channel adapter (channel adapter comprises AAL5, ATM, and Physical Layer, see page 490, Figure 14.14) at the local node interfaces the ATM host with the ATM switch via the physical layer (**channel adapter to interface the host to a switch fabric,** see 490, Figure 14.14).

Stalling does not specifically disclose a virtual interface VI work queue. However, Ikeda discloses an ATM apparatus in which a cell buffer is used for temporarily holding data of a received IP packet, and is used by a sending/receiving controller for generating an ATM cell after referring to a VC table (see lines 47-48, 53-57, col. 12). Ikeda further discloses a VC table is holding data indicating the relation between an IP address and VCI/VPI of ATM cells (descriptors about VI work queue, see lines 49-52, col. 12). As a result, a VC table and a cell buffer are indeed formed between the IP layer and the ATM layer as storage means to hold memory address information for each virtual channel. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine the cell buffer and the VC table with the LAN emulation apparatus of Stallings such as the use of the VC table and the cell buffer between the IP layer and the ATM later, as taught by Ikeda. The motivation to do so is to temporarily hold data of a received IP packet because a sending/receiving controller would be used to generate an ATM cell by using the data of the received IP packet held in the cell buffer and by referring to the VC table for the relationship between IP destination address and VCI/VPI of ATM cells for the benefit of establishing virtual channel communication between network nodes over ATM LAN.

Regarding claims 2-4, 7-9, Stallings discloses an ATM-to-LAN converter (**a remote node**, see 490, Figure 14.14) comprises an ATM layer (**local physical address**, see 490, lines 3-8), which is provided with a MAC layer (**legacy physical address**, see 490, lines 3-8). In addition, Stallings discloses an Ethernet frame can be used as the MAC frame (see Ethernet or Token Ring host, IEEE 802.3 Ethernet MAC address on 490, Figure 14.14).

Regarding claim 5, a TCP/IP protocol stack (**legacy protocol stack**, see 490, Figure 14.14) is coupled to LAN emulation module (**emulation driver**, see 490, Figure 14.14). In addition, it is well known that an ARP protocol, a low level protocol within TCP/IP, is used to obtain the MAC address from a known IP address. First, an ARP request with the IP address is broadcast onto the network. Second, the node on which the IP address (**network address**) resides responds with the MAC address (**legacy physical address**) of the node (**mapping a network address to a legacy physical address**).

Regarding claims 12-13, Stallings discloses a physical layer, a component of a channel adapter at the host node, interfaces with an ATM switch. It is inherent the physical layer typically comprises a NIC interface (**channel adapter comprises an ATM NIC for interfacing to an ATM network**).

Claim 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, Data and Computer Communications, Fifth Edition, William Stallings, 1997, in view of Ikeda and in further view of Gai et al. (US Patent 6,697,360).

Regarding claims 14-15, Stallings discloses a LAN emulation module converts MAC frames (**first physical address**, see 490, lines 3-8) to ATM cells (**second physical address, determine a first physical address to second physical address**, see 490, lines 3-8) without use of a specialized protocol.

Stallings does not explicitly show a protocol to convert IP address (network address) to MAC address (physical address). However, Gai discloses an ARP protocol (**it is noted that an ARP protocol, as admitted in claims 14 and 15, is not a specialized protocol**), a low level protocol within TCP/IP, is used to obtain the MAC address (**physical address**) from a known IP address (**network address**). First, an ARP request with the IP address is broadcast onto the network. Second, the node on which the IP address resides responds with the MAC address of the node.

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to combine the use of ARP protocol with the LAN emulation apparatus of Stallings such that a MAC address would be identified from a network IP address such as the ARP protocol taught by Ikeda. The motivation to do so is for a network node to learn an MAC address from an IP address because the MAC address returned would be used by the IP layer when handing a communication message packet down for further processing by the data link layer.

3. **Claims 21-26, 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stallings in view of Gai (US Patent 6,697,360).

Regarding claims 21-24, Stallings discloses an apparatus at an ATM host (**first node,** see 490, Figure 14.14) comprising a LAN emulation module coupled to AAL5 (ATM Adaptation

Layer). The LAN emulation module in the first node converts MAC frames (**global physical address**, see 490, lines 3-8) to and from ATM (**local physical address**, see 490, lines 3-8) cells (**obtaining a local physical address for a first node and obtaining a local physical address for other node, obtaining a legacy or global physical address for the first node**), AAL5 segments MAC frames into a plurality of ATM (**local physical address**) cells wherein each ATM cell contains virtual channel identifiers (**establishing a connection-oriented VI channel between first node and each of the one or more nodes**). It is well known in the art that a RARP (Reverse Address Resolution Protocol) protocol, a low level protocol within TCP/IP, is used to obtain the IP address (**network address**) from a known MAC address. First, an RARP request with the MAC address is broadcast onto the network. Second, the node on which the MAC address resides responds with the IP address of the node (**using a legacy protocol to broadcast a request message to obtain a network address of the first node**). The teaching of this well known RARP protocol is strongly supported by the fact that Gai discloses RARP protocol is often used by an entity to learn its own IP address by broadcasting a RARP request message containing its own MAC address (see lines 25-32, col. 3).

Regarding claim 27, Stallings discloses an apparatus at an ATM host (**first node,** see 490, Figure 14.14) comprising AAL5 (ATM Adaptation Layer, see 490, Figure 14.14). AAL5 segments MAC frames into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**establishing a VI channel between first node and each of a plurality of other nodes**, ATM-to-LAN converters, see 490, Figure 14.14). Also, it is well known that an ARP (Address Resolution Protocol) protocol, a low level protocol within TCP/IP, is used to obtain the MAC address (**global physical address**) from a known IP (**network address**) address

(**using a legacy protocol to broadcast a request message over VI channels including network address**). An ARP request with the IP address is broadcast onto the network. The node on which the IP address resides responds with the MAC address of the node (**receiving a response message including the global physical address**). Stallings discloses a LAN emulation module converts ATM cells (**local physical address**) to MAC frames (**legacy physical address**) without use of a specialized protocol.

Regarding claims 25-26, 28-29, Stallings discloses MAC frames can be transmitted over a virtual channel in multicast (**many-to-many work queue bindings between the first node and the one or more other nodes in the network**, see 490, lines 3-8) and unicast (**one-to-many work queue bindings between the first node and the one or more other nodes in the network**, see 490, lines 3-8).

Regarding claim 30, Stallings discloses an ATM-to-LAN converter (**a remote node**, see 490, Figure 14.14) comprises an ATM layer (**local physical address**, see 490, lines 3-8), which is provided with a MAC layer (**legacy physical address**, see 490, lines 3-8).

Regarding claim 31, Stallings discloses an apparatus at an ATM host (**first node**, see 490, Figure 14.14) comprising AAL5 (ATM Adaptation Layer). AAL5 segments MAC frames (**local physical address**, see 490, lines 3-8) into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**establishing a VI channel between first node and each of a plurality of other nodes**, ATM-to-LAN converters, see 490, Figure 14.14). Stallings discloses an apparatus at an ATM-to-LAN Converter (**second node**, see 490, Figure 14.14) comprising a LAN emulation module coupled to AAL5. While the LAN emulation module in the second node converts MAC frames to ATM cells (**mapping global physical address of the second node to a**

local physical address of the second node, see 490, lines 3-8), AAL5 segments MAC frames into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**mapping local physical address of the second node**, ATM-LAN converter, **to VI channel**, see 490, Figure 14.14). It is also inherent that a communication message would be sent from the first node to the second node over the established VI channel (**sending the message to the second node over the established channel**).

Regarding claim 32, Stallings discloses ATM layer (**global physical address**, see 490, lines 3-8), which is provided with the MAC layer (**local physical address**, see 490, lines 3-8).

Regarding claim 33, Stallings discloses an apparatus at an ATM host (**first node,** see 490, Figure 14.14) comprising AAL5 (ATM Adaptation Layer) and that AAL5 segments MAC frames into a plurality of ATM cells wherein each ATM cell contains virtual channel identifiers (**establishing a VI channel**, see 490, lines 3-8). Stallings also discloses an end system of an ATM–LAN emulation network generates its own MAC frames for broadcast where these MAC frames must be transmitted over a virtual channel (**generating a message to be sent and sending the message using broadcast via VI channels**, see 494, lines 35-44 and lines 3-12, page 495).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made that the LAN emulation module, AAL5, ATM layer disclosed by Stallings would have provided a method such as broadcasting message, comprising a MAC address, out to other nodes in the LAN to obtain its own ATM address such as the LE_ARP_REQUEST message being broadcast from a LE client as taught in Stallings. The motivation to do so is to obtain ATM addresses (global physical addresses) of a network node by broadcasting its own

MAC address to other nodes in the LAN because establishing virtual channel communication between network nodes over ATM LAN relies upon mapping these addresses from one to another.

Response to Arguments

4. Applicant's arguments filed on 9/10/2004, with respect to 35 USC § 112 rejection have been fully considered and are persuasive. The 35 USC § 112 rejection of claims 6, 24, 32 has been withdrawn.

5. Applicant's arguments filed on 9/10/2004 regarding the 35 U.S.C. 103(a) rejections have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "VI work queue") are not recited in the rejected claims 1-5. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Applicant does not specifically define VI work queue in the claim and thus the ATM Virtual Channel Identifiers reads on VI work queue. Therefore, claims 1-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Stallings.

In response to the Applicant's argument that the teaching of Stallings to employ a technique to map a MAC address to an ATM address fails to disclose the limitation of "a MAC address is embedded within an ATM address" as recited in claims 6-13, the Examiner respectfully disagrees. In the LAN emulation protocol architecture diagram shown on page 490 of Stallings, in the ATM host, the LAN emulation transmits and receives MAC frames (see lines 10-18, page 490) and LAN emulation layer is sitting on top of the ATM layer (see diagram on page 490), which indicates that MAC frames that are transmitted from the LAN emulation are encapsulated within the ATM layer before transmission via the Physical Layer to the physical

medium. Therefore, claims 6-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Stallings.

Conclusion

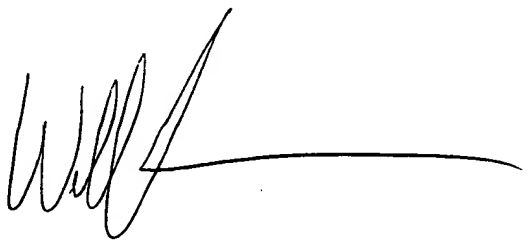
6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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